



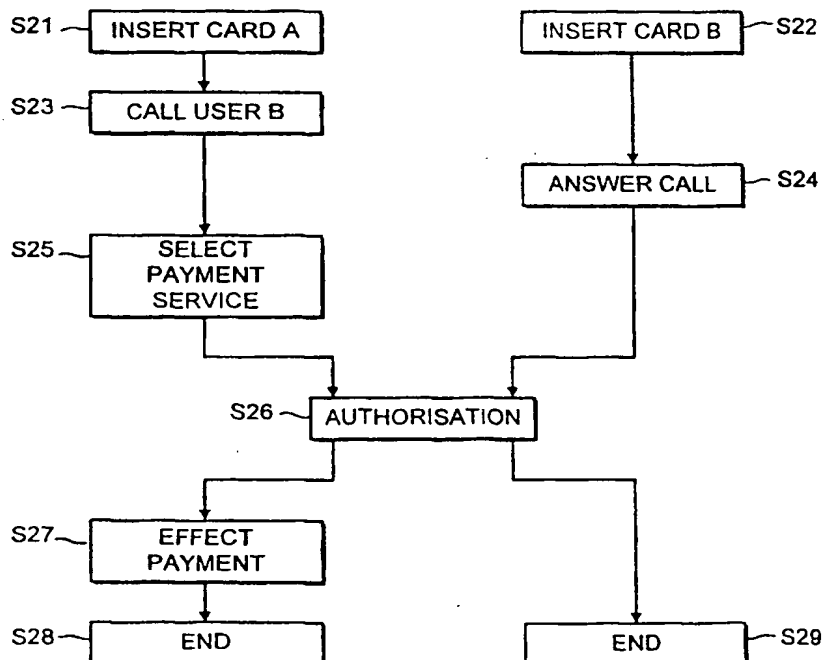
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/EP00/01418 (22) International Filing Date: 21 February 2000 (21.02.00) (30) Priority Data: 9904041.2 22 February 1999 (22.02.99) GB (71) Applicant: TELEFONAKTIEBOLAGET LM ERICSSON [SE/SE]; S-126 25 Stockholm (SE). (72) Inventors: OOM, Jan; Vinkelvägen 8, S-590 41 Brokind (SE). KVARSTRÖM, Bo; Bygdegatan 410, S-583 31 Linköping (SE). RAGNAR, Mikael; Källhemsvägen 39, S-590 72 Ljungsbro (SE). LINNELL, Ove; Norrbergavägen 97, S-590 54 Sturefors (SE). (74) Agent: O'CONNELL, David, Christopher; Haseltine Lake & Co., Imperial House, 15-19 Kingsway, London WC2B 6UD (GB).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: MOBILE COMMUNICATIONS DEVICE

## (57) Abstract

There is disclosed an arrangement in which a standard cash card, namely one which can be used in a variety of financial transactions, can be inserted into a slot in a mobile communications device, which may for example be in the form of a mobile phone. After establishing a communications path between the mobile communications device and a financial services provider, or other transactor (including another user of a similar device) and confirming by means of an authorisation procedure that a user of the device is authorised to perform transactions, value can be transferred between the user and the other transactor. The card can then be removed from the mobile communications device, and used in a conventional way, for example in transaction payments.



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MOBILE COMMUNICATIONS DEVICE  
TECHNICAL FIELD OF THE INVENTION

This invention relates to a mobile communications device, and in particular to a mobile communications  
5 device suitable for use in performing financial transactions, and to a method of performing such transactions.

BACKGROUND OF THE INVENTION

Proposals have been made for various forms of  
10 electronic financial transactions, in which value is transferred from one user to another user to be held electronically, for example on so-called smart cards.

The present invention relates to a system for performing such transactions using a mobile  
15 communications device.

WO96/25828 discloses a method for performing financial transactions using a mobile station. A cash card application is carried on an application module, which can be inserted into a slot in a mobile station.  
20 When the module is inserted in the slot, the cash card application is available for use by a user of the mobile station.

When the cash card application is available, it can be used for financial transactions. For example,  
25 electronic cash can be loaded onto the application from a user's bank account, after establishment of a communications link between the mobile station and a computer in the bank. Further, again when the cash card application module has been inserted into a slot  
30 in a mobile station, a data transfer link, for example based on infrared or other remote methods of data transfer, can then be established with a payment terminal, for example at a retailer's premises, allowing cash stored on the application to be used for  
35 making payments.

SUMMARY OF THE INVENTION

In accordance with a preferred aspect of the invention, a standard cash card, namely one which can be used in a variety of financial transactions, can be inserted into a slot in a mobile communications device, which may for example be in the form of a mobile phone. After establishing a communications path between the mobile communications device and a financial services provider, and confirming by means of an authorisation procedure that a user of the device is authorised to perform transactions, value can be transferred from the financial services provider, for example from an account held by the user, to be stored on the cash card.

The card can then be removed from the mobile communications device, and used in a conventional way, for example in transaction payments.

This has the advantage that the mobile communications device is used as a mobile terminal at which value can be loaded onto the cash card, thereby avoiding the need for the user to visit a static terminal.

According to a second preferred aspect of the invention, a mobile communications device is provided with a slot for insertion of a standard cash card, and means for transferring data to and from a card inserted in the slot.

Such a device has the advantage that it avoids the need for the user to find and visit a static terminal to be able to use the cash card.

### BRIEF DESCRIPTION OF DRAWINGS

Figure 1 is a block schematic diagram of a mobile phone in accordance with the invention.

Figure 2 is a flow chart showing the progress of a first transaction carried out in connection with an aspect of the invention.

Figure 3 is a flow chart showing a second

financial transaction carried out in accordance with an aspect of the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Figure 1 shows a mobile phone in accordance with the invention. The phone 2, as is conventional, includes a processor 4 and associated circuitry, and a MMI 6, for example in the form of a keypad allowing the user to input data and a display for providing messages to the user. The phone 2 also includes transceiver circuitry 8, connected to an antenna 10 provided on the exterior of the phone 2, for communicating with a communications network. For example, in the case of a cellular phone, communications are made via a network base station, while, if the phone 2 is a satellite phone, communications are made with a satellite-based transceiver. Other features of the phone are conventional, and not relevant to an explanation of the present invention, and are not described further herein.

The phone 2 also includes a smart card reader 12, which is connected to the processor 4.

The smart card reader 12 preferably takes the form of a slot provided in an external surface of the phone 2, into which a card can be inserted. Further, the smart card reader 12 comprises means for reading data from a card inserted into the slot.

An important aspect of the invention is that the card which is to be read is a standard card, which can be used away from the phone in financial transactions.

The card reader 12 is a smart card reader, capable of reading data electronically off a card which includes a processor and electronic memory devices. However, the card may for example be a magnetic strip card, in which case the card reader which is to be used must be capable of detecting data stored in such a device.

However, what is important is that the phone is provided with suitable means for reading data from, and transferring data to, a standard card which can be used in a variety of other locations. For example, the card  
5 may be able to be used in static cash machines, and various retail locations, and other locations where payments are made.

The smart card reader, as mentioned above, is connected to the processor and able to transmit thereto  
10 data read off the card. Moreover, the card reader 12 is also able to write data to a card which has been inserted in the slot.

The use of the device shown in Figure 1 will now be described with reference to Figure 2, which is a  
15 flow chart showing the progress of a transaction using the device.

In Figure 2, it is assumed that the user has a standard cash card, which can be used to make payments, and in other financial transactions, separately from a  
20 mobile phone, and that the user also has a mobile phone as shown in Figure 1, with a suitable slot for receipt of the card.

To begin the procedure, the user in step S11 inserts the card into the phone and, at step S12, dials  
25 a number (which may advantageously be pre-stored in the device) of his bank, or other financial services provider.

At step S13, an authorisation procedure is carried out in which the user is, for example, required to  
30 confirm that he is an authorised user of the device, for example by entering a PIN. Other security and authorisation checks are of course possible.

Once the bank has confirmed that the user is authorised, the user is presented with a choice of  
35 available services and, at step S14, he selects a cash loading service. Of course, this is only one example

of the type of service which might be available. In step S15, the cash loading takes place, in which the user specifies the number of an account which he holds with the financial services provider, and specifies an amount of cash, that amount then being transferred out of the relevant account, and on to the cash card in the form of stored value. At step S16, the process ends.

The card having been loaded with cash, it may then be used, for example, to make payments in a conventional way.

Figure 3 shows another form of financial transaction, in which a user transacts not with a financial services provider, but with another user of a similar service. Such another user is also referred to herein as a "financial transactor". In this case, the users are able to use a communications link between their mobile phones as a secure route for the transfer of value from one user to the other.

As described further below, this transaction allows two users to transfer value between their cash cards.

In such a case, it is necessary to establish a phone link between the two users A and B, and for both users to have their cash cards inserted into their phones. As shown in Figure 3, this exemplary process begins with user A inserting his card into his phone (step S21), and user B inserting his card into his phone (step S22). Then, user A initiates a call to user B (step S23), and user B answers the call (step S24). This is possible if, for example, users A and B are able to speak to one another and agree to begin the procedure in this way. However, if the users are able to communicate only over the phone, then the call can be placed before either of the parties, or at least before the called party, has inserted his card into the phone.

Thus, the established communications path allows voice communication between the users, for example to agree a transaction, and then allows the users, after entering their cash cards, to transfer value between those cards.

Once the phone connection has been established, and the users have inserted their cards, in whichever order these events occur, user A, at step S25, selects a payment service and, at step S26, an authorisation procedure is carried out, in which each card and phone device confirms to the other that it is genuine, for example by the transmission of secret keys which are built into cards by the card issuers.

Once authorisation has been established, user A (in this case) effects a payment to user B in step S27. For example, it is necessary for user A to identify the amount of the money which is to be transferred. This amount is then deducted from the value stored on his card, and added to the value stored on the card of user B.

Thus, the communication involves only the two users A and B, who can transfer stored value between their two cards as they wish. Since no card issuers, or other financial service providers, are involved in the transaction, there is no record of the transaction. Thus, no independent receipt is issued by a third party as an official record, although each phone device may record transactions.

Further, neither user knows the balance of stored value on the other user's card, and neither card issuer knows the balance of stored value on either card.

Once the transaction has been completed then, at steps S28, S29, each user can terminate the procedure by ending the phone call.

There are thus disclosed procedures by which a user of a phone can carry out a financial transaction,



using a standard card, even though he is remote from card reading equipment provided by the card issuer.

CLAIMS

1. A method of transferring value, using first and second mobile communications devices, the method comprising:

5 inserting a first standard cash card, which is capable of use in transactions remote from the mobile communications devices, into a suitable slot in the first mobile communications device;

10 inserting a second standard cash card, which is capable of use in transactions remote from the mobile communications devices, into a suitable slot in the second mobile communications device;

15 establishing a communications path between the first and second mobile communications devices without involving a financial services provider;

confirming by means of an authorisation procedure carried out in at least one of the mobile communications devices that at least one user of the devices is authorised to perform transactions; and

20 transferring value between the first and second cash cards.

2. A method as claimed in claim 1, wherein at least one of the mobile communications devices is a mobile phone, and the step of establishing a communications path uses a satellite or cellular phone network.

3. A method as claimed in claim 1, wherein no third party records the transfer of value.

30 4. A method as claimed in claim 1, wherein no third party issues any receipt as a record of the transfer of value.

35 5. A method as claimed in claim 1, in which the step of establishing a communications path takes place after the steps of inserting the first and second standard cash cards into the slots in the respective mobile communications devices.

6. A method as claimed in claim 1, in which the step of establishing a communications path takes place before inserting at least one of the first and second standard cash cards into the slot in the respective mobile communications device.

7. A method as claimed in claim 6, in which the established communications path allows voice communication before at least one of the first and second standard cash cards has been inserted into the slot in the respective mobile communications device.

8. In combination:

a cash card, comprising means for storing data representing a financial value, the card being capable of independent use as a payment means; and

a mobile communications device, the mobile communications device comprising:

a slot for insertion thereof of the cash card,  
means for transferring data to and from the card inserted into the slot,

means for establishing a communications path with a further mobile communications device without involving a financial services provider;

means for performing an authorisation procedure, confirming that at least one user of the mobile communications devices is authorised to perform transactions; and

transferring value to or from the cash card.

9. A combination as claimed in claim 8, wherein the mobile communications device is a satellite or cellular mobile phone.

10. A combination as claimed in claim 8, wherein the mobile communications device allows voice communication over the same established communications path as the financial transaction.

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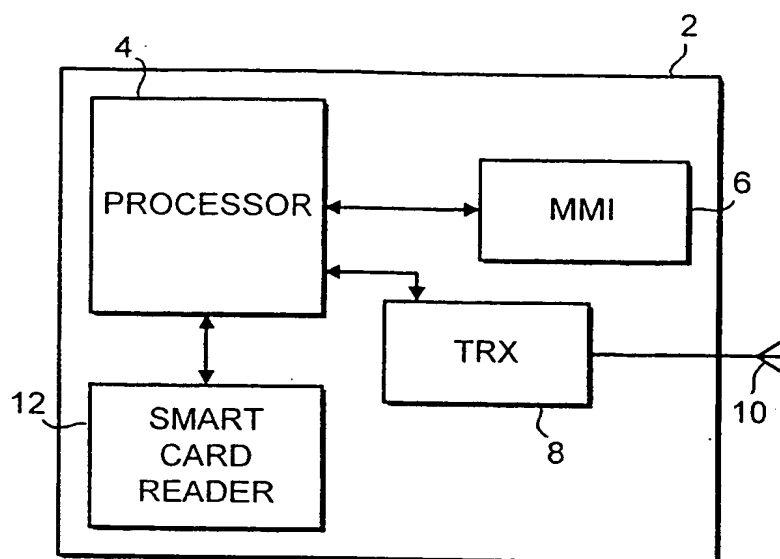


FIG. 1

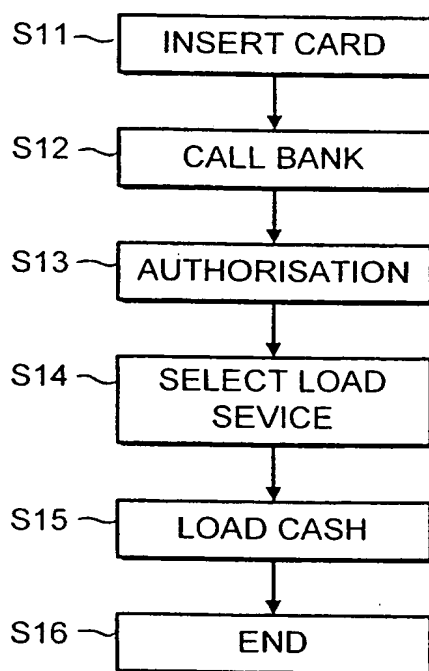


FIG. 2

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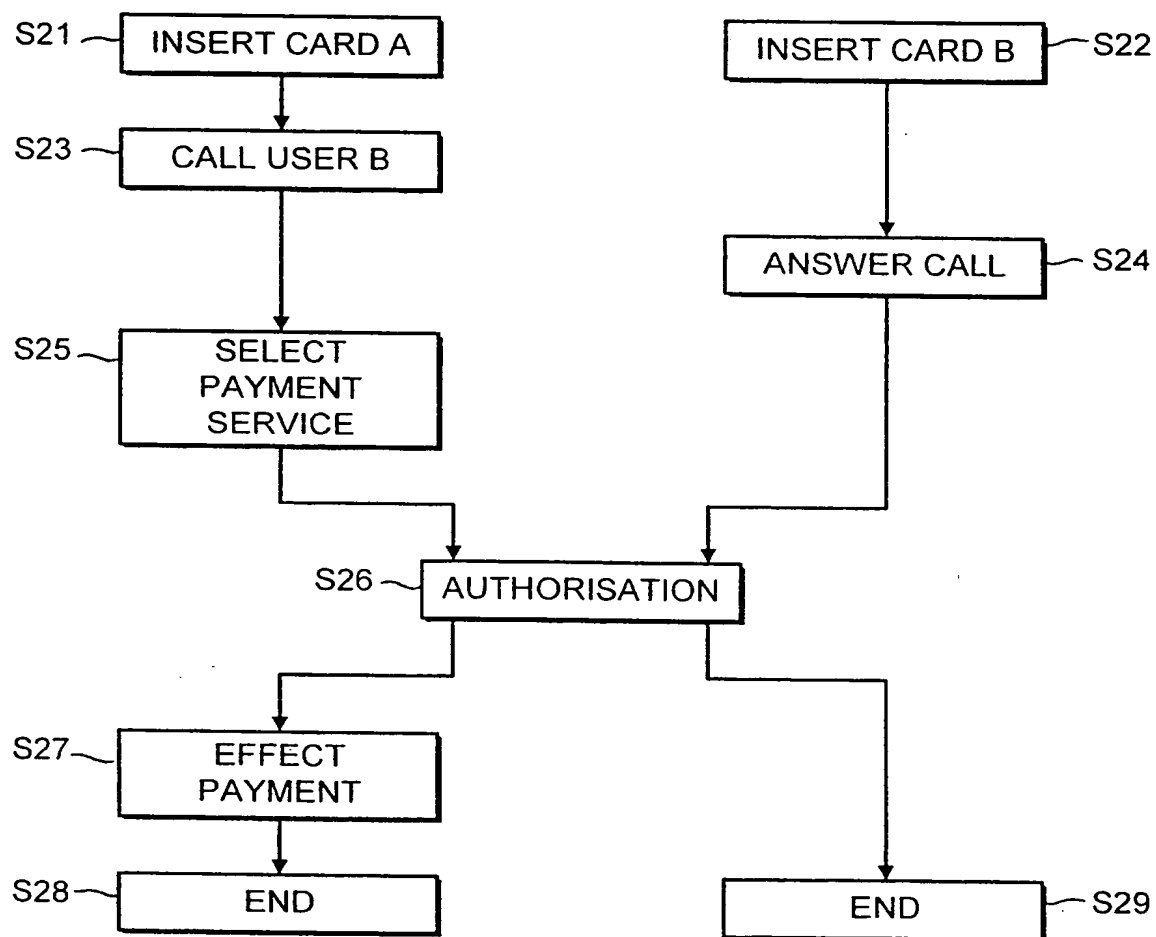


FIG. 3

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# INTERNATIONAL SEARCH REPORT

Inter. nat. Application No

PCT/EP 00/01418

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G07F7/08 H04Q7/32

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07F H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 45814 A (VAZVAN BEHRUZ) 4 December 1997 (1997-12-04) abstract; claims 1,9; figures 6,9 page 2, line 10 - line 19 page 11, line 38 -page 12, line 18 ---	1-10
X	WO 96 25828 A (NOKIA MOBILE PHONES LTD ;TERHO MIKKO (FI); HEINONEN PETRI (FI); MA) 22 August 1996 (1996-08-22) cited in the application page 20, line 1 - line 6; claims 1-5; figure 7 page 13, line 3 -page 14, line 3 ---	1-5,8,9
A	WO 96 13814 A (VAZVAN BEHRUZ) 9 May 1996 (1996-05-09) page 6 -page 7; claim 1; figure 4 --- -/--	1-10

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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